Ethical guidelines and codes in operations research ☆

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ABSTRACT

We review past endeavors by ORSs to establish ethical guidelines or codes to which their members must subscribe to. We contrast such activities with those of the international community of related professional societies. It is clear that ORSs world-wide do not exhibit the important basic characteristic of a profession, that is, the adoption of and adherence to ethical guidelines and codes. Such adoptions by OR professional organizations are rare.

1. Ethical guidelines and codes

For professional societies, we differentiate between guidelines and codes in the following manner. Ethical guidelines state general principles of conduct that members of a profession are expected to follow in carrying out their professional duties be it practice, research, or teaching (see, for example, [1]). As noted in [1]:

> The formulation of these Guidelines is not meant to codify a set of rules, but to make explicit patterns of scientific practice that have been developed over many years and are followed by the vast majority of scientists, and to provide benchmarks when problems arise.

Guidelines are standards or principles by which to make a judgment or determine a policy or course of action [2]. In contrast, a professional society's ethical code is an official statement to which the society's members agree to adhere to in accomplishing all aspects of their professional life (see, for example, [3]). They are a set of principles or rules of conduct [2]. Thus, both guidelines and codes are sets of principles of conduct governing an individual or group; their difference, with respect to a professional organization, being their official status. In this paper, we tend to use the word code, recognizing that in most instances guidelines and code can be used interchangeably.

Two question come to mind: (1) Is OR a profession? and (2) Why should a profession have a code of ethics? For question (1) we have from [2] that the characteristics of a profession are "A vocation or occupation requiring advanced education and training, and involving intellectual skills, as medicine, law, theology, engineering, teaching, etc.". Further, as Johnson [4] notes, professional characteristics include:

> Professions require mastery of an esoteric body of knowledge, usually acquired through higher education.
> Members of a profession typically have a good deal of autonomy in their work.
> Professions usually have a professional organization that controls admission to the profession and sets standards for practice.
> Professions fulfill an important social function or are committed to a social good.

We may conclude, as does Johnson [4] with respect to the computer profession, that the OR profession "… does not fit the classic paradigm. That is, it is not a profession in the same way as that law and medicine are". But that, OR professionals "… are much closer to the paradigm of special professionals than, say, stockbrokers or carpenters or mail carriers".

For question (2), the rationale for why a professional organization should have a code of ethics is given by Johnson [4], Anderson et al. [5]:

A code clarifies and states ethical requirements that are important to the group as a professional association; the profession's shared commitment.

A code informs the individual on issues related to one's professional activities such as rules and standards.

A code holds the profession accountable to the public and thus builds public trust.

A code aids the individual professional in decision making and in resolving difficult ethical situations.

A code helps to deter unethical behavior of a society's members and promotes self-regulation.

A code is a means of establishing quality control of professional work.

A code lists possible violations, sanctions and enforcement procedures.

There are, of course, difficulties in applying a code of ethics across all members of a professional society. Citing activities as ethical violations and trying to resolve them by a professional society is very difficult. Self regulation depends on consensus and commitment of a society's members to ethical behavior. But, it seems clear that all OR professional societies should adopt a code of ethics to further the profession's main activities (practice, research, teaching) in the eyes of its members and the public they serve. Such codes, each based on the professional needs and cultural background of a country's OR Society, would help establish OR as a recognized profession within a country and world-wide.

We need to differentiate between what we term soft and hard codes of ethics. The former is usually a short set of statements that represents the ethical consensus of most of the members who belong to the associated professional society or group. The Oath of Prometheus (see below) is a soft code of ethics. A hard code of ethics is a detailed set of statements covering most, if not all, of a profession's activities and related individual responsibilities; it may include sanctions leveled against a member if it can be shown that the member did not behave in an ethical fashion with respect to the profession and the society in general. The ACM Code of Ethics and Professional Conduct [3] is a hard code of ethics. Both types of codes have their place within the professional world.

2. Ethical guidelines and codes of ORSs

In this section we describe adopted and proposed ethical guidelines and codes by OR organizations. Although we cannot state that our effort to determine the official status of proposed or in-being ethical codes in ORSs has been exhaustive, we do feel confident that we have not missed any activities of importance. Our search leads us to conclude that the history of ethical concerns within the OR profession and its societies is rather weak.

2.1. The Fellowship for OR [6]

The Fellowship is a professional society in the UK and is incorporated under the Companies Act. The associated Memorandum of Association states its objectives as:

To ensure the maintenance and continued development of operational research as a profession.

To establish and administer standards of practice concerning the competence and ethical conduct of members of the Fellowship (emphasis added).

To provide a body to further the interests of those engaged in operational research as a profession.

A statement of compliance with these objectives must be made by a Fellow on admission to the Fellowship.

To fulfill the needs of item (ii), the Fellowship promulgated the document "Professional Conduct—Guidance for Fellows of Operational Research" [6]. There it states:

These notes are about several aspects of professional conduct which may confront Fellows in the course of their work, and are intended for their guidance. Rigid instructions and admonishments from the Fellowship have been avoided. … Rather, the Fellow should read the notes as a whole to provide himself with a basis for his own decisions, a basis most likely to be acceptable to his professional colleagues.

The publication discusses, among other situations, ethical aspects when one is self-employed, salaried employee, employer, consultant, expert witness, and in the writing of books and presentation of lectures.

2.2. Operations Research Society of America

The Operations Research Society of America (ORSA) published in its journal *Operations Research*, the report "Guidelines for the Practice of Operations Research" [7]. This report was prepared by The ORSA Ad Hoc Committee on Professional Standards and was developed as part of a larger report that dealt with the proposed deployment of an antiballistic missile system (ABM) called SAFEGUARD. The Ad Hoc Committee was asked to evaluate "the professional conduct during the ABM debate". The debate revolved about the extent of the vulnerability of the American land-based Minutemen ICBM's to Soviet SS-9 missile attack: whether the US would not be able to strike back as too many Minutemen would be destroyed or that enough Minutemen would survive to inflict unacceptable damage to the Soviet Union.

The ORSA constitution stated one of the purposes of ORSA shall be:

… the establishment and maintenance of professional standards of competence for work known as operations research.

Until the publication of the "Guidelines", ORSA had no such statement of standards. The professional practice "how to" part of the "Guidelines" is sectioned into six major headings:

General—emphasizes the scientific spirit of openness, explicitness, and objectivity.

In beginning a study—describes the initial procedural and cooperative elements that an analyst and the client